What is claimed is:

1. A method for observing a sample with patterns formed thereon, including the steps of:

applying a polarized light to the sample through an objective lens;

detecting the light applied to and reflected from the surface of the sample through the objective lens, thereby calculating a deviation of the polarized light from a focal point on the sample in the axial direction of the light;

adjusting the height of the sample to the objective lens according to the calculated deviation from the focal point; and

detecting the polarized light applied to and reflected from the surface of the height adjusted sample through the objective lens, a phase difference plate and an analyzer.

2. A method for observing a sample in accordance with claim 1 wherein the phase difference plate changes part of the intensity of the light reflected from the surface of the sample.

3. A method for observing a sample in accordance with claim 1 wherein the phase difference plate reduces the amplitude of only the 0-order diffracted light reflected from a pattern formed on the surface of the sample more than the amplitudes of higher-order diffracted lights being included in the light reflected form the surface of the sample.

4. A method for observing a sample in accordance with claim 1 wherein the method further includes a step for displaying the image of the sample formed with the detected light, on a monitor screen.

5. A method for observing a sample with patterns formed thereon, including the steps for:

applying a polarized light to the sample from an optical system set on first polarizing condition;

detecting the light applied to and reflected from the surface of the sample through a phase difference plate and an analyzer, thereby obtaining a first image;

displaying the first image on a monitor screen;

setting the optical system on a second polarizing condition according to the first image displayed on the monitor screen;

applying a polarized light to the sample from the optical system set on the second polarizing condition; and

detecting the light applied to and reflected from the surface of the sample through the phase difference plate and the analyzer, to thereby obtain a second image.

6. A method for observing a sample in accordance with claim 5 wherein the first and second polarizing conditions include polarizing characteristics, polarized light wavelength, the aperture of an aperture diaphragm of a lighting system, and the shape of a space filter.

7. A method for observing a sample in accordance with claim 5 wherein the phase difference plate is adjusted when the optical system is set in the second polarizing status, thereby changing the intensity of the light applied to and reflected from the surface of the sample.

8. A method for observing a sample in accordance with claim 5 wherein the phase difference plat is adjusted when the optical system is set in the second polarizing condition, thereby reducing the amplitude of the 0-order diffracted light from a pattern formed on the surface of the sample more than the amplitude of the higher-order diffracted light, both of the 0-order and higher-order diffracted light being included in the light reflected from the surface of the sample.

9. A method for observing a sample in accordance with claim 5 wherein the method further includes a step for displaying the image of the sample formed with the detected light on a monitor screen.

10. A method for observing a sample in accordance with claim 9 wherein the method further includes a step for displaying information comprising polarizing characteristics, polarized light wavelength, the aperture of the aperture diaphragm of the lighting system, and the shape of the space filter.

11. An apparatus for observing a sample with patterns formed thereon including:

lighting means for applying a polarized light to the sample through an objective lens;

focal point detecting means for detecting the light applied from the lighting means and reflected from the sample through the objective lens, thereby calculating a deviation of the polarized light from the focal point on the surface of the sample in the axial direction thereof;

height adjusting means for adjusting the height of the sample to the objective lens according to the deviation from the focal point, calculated by the focal point detecting means; and

polarized light detecting means for detecting the light reflected from the surface of the sample through the objective lens, a phrase difference plate and an analyzer when the light polarized by the lighting means is applied to the sample whose height is adjusted by the height adjusted means.

12. An apparatus for observing a sample in accordance with claim 11 wherein the phase difference plate has a ½ wavelength plate and a ¼ wavelength plate and is used to change the intensity of the light reflected from the surface of the sample.

13. An apparatus for observing a sample in accordance with claim 11 wherein the phase difference plate has a ½ wavelength plate and a ¼ wavelength plate and is used to reduce the amplitude of the 0-order diffracted light from a pattern formed on the surface of the sample more than the amplitude of the higher-order diffracted light, both of the 0-order and higher-order diffracted light being included in the light reflected from the surface of the sample.

14. An apparatus for observing a sample in accordance with claim 11 wherein the apparatus further includes display means for displaying the image of the sample formed with the detected light.

15. A method for inspecting defects of a sample with patterns formed thereon, the method including steps for:

applying polarized light to the sample through an objective lens;

detecting the polarized light applied to and reflected from the surface of the sample through the objective lens, a phase difference plate and an analyzer, thereby obtaining an image of the sample; and

comparing the obtained image with a corresponding image previously stored, thereby detecting the defects of the sample.

16. A method for inspecting defects of a sample in accordance with claim 15 wherein the phase difference plate changes the intensity of the polarized light applied to and reflected from the surface of the sample partially.

17. A method for inspecting defects of a sample in accordance with claim 15 wherein the phase difference plate reduces the amplitude of the 0-order diffracted light from a pattern formed on the surface of the sample more than the amplitude of the higher-order diffracted light, both of the 0-order and higher-order diffracted lights being included in the light applied to and reflected from the surface of the sample.

18. A method for inspecting defects of a sample in accordance with claim 15 wherein the method further includes a step for displaying the image of the sample formed with the detected light on a monitor screen.

19. A method for inspecting defects of a sample with patterns formed thereon, including the steps for:

applying a polarized light to the sample from an optical system set on first polarizing condition;

detecting the light applied to and reflected from the sample, to thereby obtain a first image;

displaying the first image on a monitor screen;

setting the optical system in a second polarizing condition according to the first image displayed on the monitor screen;

applying the polarized light to the sample while the optical system is est in the second polarizing condition;

detecting the light applied to and reflected from the sample, thereby obtaining a second image; and

comparing the obtained second image with a corresponding image previously stored, thereby detecting defects of the sample.

20. A method for inspecting defects of a sample in accordance with claim 19 wherein the first and second polarizing conditions are polarizing characteristics, the wavelength of the polarized light, aperture of the aperture diaphragm of the lighting system, and the shape of the space filter.

21. A method for inspecting defects of a sample in accordance with claim 19 wherein the method changes the intensity of the light applied to and reflected from the sample partially when the optical system is set in the second polarizing status.

22. A method for inspecting defects of a sample in accordance with claim 19, wherein the method reduces the amplitude of the 0-order diffracted light from a pattern formed on the surface of the sample more than the amplitude of the higher-order diffracted light when the optical system is set in the second polarizing status, both of the 0-order and higher-order diffracted light being included in the light applied to and reflected from the surface of the sample.

23. A method for inspecting defects of a sample in accordance with claim 19 wherein the method further includes a step for displaying the image of the sample formed with the detected light, on a monitor screen.

24. A method for inspecting defects of a sample in accordance with claim 19 wherein the method further includes a step for displaying such information as polarizing characteristics, the wavelength of the polarized light, the aperture of the aperture diaphragm, and the shape of the space filter on the monitor screen.

25. An apparatus for inspecting defects of a sample with patterns formed thereon including:

lighting means for applying a polarized light to the sample through an objective lens;

polarized light image detecting means for detecting the light reflected from the surface of the sample through an objective lens, a phase difference plate and an analyzer when the polarized light is applied to the sample from the lighting means, thereby obtaining the image of the sample; and

defect detecting means for comparing the image obtained by the image detecting means with a corresponding image stored beforehand, thereby detecting defects of the sample.

26 . An apparatus for inspecting defects of a sample in accordance with claim 25 wherein the phase difference plate has a ½ wavelength plate and a ¼ wavelength plate and is sued to change the intensity of the light applied to and reflected from the surface of the sample.

27. An apparatus for inspecting defects of a sample in accordance with claim 25 wherein the phase difference plate has a ½ wavelength plate and a ¼ wavelength plate and is used to reduce the amplitude of the 0-order diffracted light from a pattern formed on the surface of the sample more than the amplitude of the higher-order diffracted light, both of the 0-order and higher-order diffracted lights being included in the light applied to and reflected from the surface of the sample.

28. An apparatus for inspecting defects of a sample in accordance with claim 25 wherein the apparatus is further provided with display means for displaying the image of the sample formed with the detected light on a monitor screen.